

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

41. (Currently amended) A monolithically integrated device having at least a first mode of light and second mode of light propagating therein, comprising:

~~a first waveguide~~ an active region for emitting light; and

a passive region optically coupled with said active region for receiving light from said active region and propagating light away from said active region, and for propagating light to said active region, a second waveguide coupled to said first waveguide; said active region second waveguide having a lateral taper formed therein for guiding light between said active region first waveguide and said passive region second waveguide;

wherein said active region has a first effective index of refraction and said passive region has a second effective index of refraction, said first effective index of refraction and said second effective index of refraction having values causing the first mode of light and the second mode of light to be ~~are~~ divided unequally between said active region first waveguide and said passive region second waveguide in an area where the active region and the passive region overlap.

42. (Currently amended) The device according to claim 41 wherein the first mode of light is primarily confined to said passive region first waveguide and the second mode of light is primarily confined to said active region second waveguide.

43. (Previously presented) The device of claim 41, wherein said lateral taper has an exponential curve.

44. (Canceled).

45. (Canceled).

46. (Currently amended) The device of claim 42, wherein said ~~second-waveguide~~ comprises an active region amplifies for amplifying light propagating therein and said second mode of light experiences higher gain than the first mode of light.

47. (Currently amended) The device of claim 41 44, wherein said active region ~~second-waveguide~~ has a higher effective index of refraction than said passive region ~~first waveguide~~.

48. (Previously presented) The device of claim 41, further comprising a substrate.

49. (Previously presented) The device of claim 41, wherein said device comprises a laser.

50. (Previously presented) The device of claim 49, wherein said laser comprises at least one quantum well.

51. (Currently amended) The device of claim 41, wherein at least one of said passive region ~~first-waveguide~~ and said active region ~~second-waveguide~~ comprises a grating region for reflecting selected frequencies of light.

52. (Currently amended) The device of claim 41, wherein said active region ~~second-waveguide~~ is positioned vertically relative to said passive region ~~first-waveguide~~.

53. (Previously presented) The device of claim 41, wherein said device comprises at least one of the following: an optical detector and an optical amplifier.

54. (Previously presented) The device of claim 41, wherein said device is a photonic integrated circuit.

55. (Currently amended) A photonic device comprising:

at least an active region for emitting light a first waveguide and a passive region for receiving light from said active region and propagating light to said active region, second waveguide,

wherein one of said active region first waveguide and said passive region second waveguide comprise a lateral taper for guiding light between said active region first waveguide and said passive region second waveguide, and

wherein said active region first waveguide and said passive region second waveguide have different effective indices of refraction resulting in a first mode of light and a second mode of light being divided unequally between said active region first waveguide and said passive region second waveguide in an area where the active region and the passive region overlap.

56. (Currently amended) The device according to claim 55, wherein the first mode of light is primarily confined to said passive region first waveguide and the second mode of light is primarily confined to said active region second waveguide.

57. (Previously presented) The device of claim 55, wherein said lateral taper has an exponential curve.

58. (Canceled).

59. (Currently amended) The device of claim 56, wherein said second waveguide comprises an active region amplifies for amplifying light propagating therein and the second mode of light experiences higher gain than the first mode of light.

60. (Currently amended) The device of claim 55, wherein said active region second waveguide has a higher effective index of refraction than said passive region first waveguide.

61. (Currently amended) The device of claim 60, wherein said active region second waveguide is positioned vertically on top of said passive region first waveguide.

62. (Previously presented) The device of claim 55, further comprising a substrate.
63. (Previously presented) The device of claim 55, wherein said device comprises a laser.
64. (Previously presented) The device of claim 63, wherein said laser comprises at least one quantum well.
65. (Currently amended) The device of claim 55, wherein at least one of said active region ~~first waveguide~~ and said passive region ~~second waveguide~~ comprise a grating for reflecting selected frequencies of light.
66. (Previously presented) The device of claim 55, wherein said device comprises at least one of the following: an optical amplifier and an optical detector.
67. (Previously presented) The device of claim 55, wherein said device is a photonic integrated circuit.